sample 6 is determined by the reaction. Therefore, as in the description of Fig. 2, the amount of fluorine radicals similarly varies between the central section and the peripheral section of sample 6. Member 12 consumes fluorine radicals remaining in the proximity of sample 6 to uniform the amount of radicals incident to sample 6. The reaction on the surface of member 12 is adjustable by the bias regulated by the bias controller described above. The variation in time of the reaction is minimized by cooling function 15. When the width of member 12 in a horizontal direction associated with the sample surface is set to the distance between plate 5 and sample 6, it is possible to completely uniform the radicals incident to sample 6. However, the width is substantially required only to be 20 mm or more to advantageously uniform the radicals. Resultantly, the width is set to an effective zone ranging from the distance between plate 5 and sample 6. to 20 mm. Height of member 12 in a direction orthogonal to sample 6 is also related to the width. The height can be set to a larger value as the width increases. Substantially, for a given height, an optimal width is set to a value in a range greater than 0 mm to 40 mm. In the embodiment of Fig. 1, the surface material of member 12 is silicon 13. However, carbon, silicon carbide, quartz, aluminum oxide, or aluminum may be used to obtain an equivalent advantage depending on types of radicals to be controlled.

D1 Cont

IN THE CLAIMS:

2 3 4 5 6 7

Please 1, 17, 23, 58, 64 and 66 as follows:

D2

1. (twice amended) A plasma etching system for use with a surface etching apparatus in which in a vacuum chamber including vacuum generating means, source material gas supply means, sample setting means, and high-frequency power applying means, the source material gas is transformed into plasma to achieve surface etching of the sample, means for generating the plasma including electromagnetic wave supply means and magnetic field generating means, comprising: